

BSCS Biology An Ecological Approach

Chapter 20 Behavior, Selection and Survival

When we try to pick out anything by itself, we find it hitched to everything else in the universe.

-John Muir

Introduction

To use the vernacular of the average high school student (if there is such a thing), “Animals don’t chill.” This translates to the fact that animals are constantly doing something. Put in the words of a biologist, they are responding to **stimuli**, both **external** and **internal**. **Natural selection** tends to **favor** or “**select**” those individuals which are best able to **adapt** and **tolerate** environmental conditions in which they live. These are the organisms that survive to pass on their **genes** to the next generation.

Animal Behavior

Animal behavior is basically of two types: **Innate** or **genetic behavior** is sometimes referred to as **instinct**. It is “pre-programmed” and present at birth. **Learned behavior** is often acquired through a process of **trial and error**. Any behavior that helps the species survive will be passed on to future generations through genetics or instruction.

Animal Interactions

All animals **interact** with other animals in one form or another. If these interactions are among the same species, it is referred to as **social behavior**. Other types of animal interactions include **cooperative behavior** and **competitive behavior**. Animal **rituals** or **symbolic behavior** help a species avoid injury due to fighting. Members of the dog family, for example, bare their teeth in what is referred to as a **ritualistic snarl**.

Animal Hierarchies and Territories

Hierarchies in the animal world help establish **dominance**. Many animals defend defined living and feeding spaces known as **territories**. Often, **courtship behavior** results in **sexual selection**, in which only a select few of the population breed. Finally, some animals engage in **cooperative behavior** in which many individuals of the same population cooperate in the reproductive process as well as in the raising of the young. This behavior insures the survival of the species.

Environmental Conditions and Animal Survival

Since **environmental conditions** (such as **temperature**, **humidity**, **light**, etc.) can vary, animals must adjust or adapt quickly in order to survive. A fast response to an environmental condition is for the animal to simply **move** by flying, running, swimming, or otherwise establishing distance from the undesirable situation. A process that allows animals to survive cold winters is

hibernation in which the organism's **metabolism** slows considerably. Some animals are more **tolerant** than others of environmental variations.

Human Activities and Animal Survival

Human activities can greatly impact the habitats of animals and their resulting survival and reproductive success. Simply put, when humans move in, animals are faced with one of three choices: 1. move, 2. adapt, or 3., die off. Plants of course cannot move.